

In re: Takeishi et al.
Serial No.: 10/730,638
Filed: December 8, 2003

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IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please amend the claims as follows:

1. (currently amended) A dimethyl ether steam reforming catalyst capable of steam-reforming dimethyl ether to obtain hydrogen, comprising active alumina, Cu, and at least one element selected from the group consisting of Mn and Fe, wherein the catalyst is prepared by a sol-gel method and the catalyst having has a porous structure, and wherein an amount of pores having pore diameters of 80 Å to 200 Å occupy a largest volume in said porous structure ~~and wherein~~ the volume of pores having pore diameters of 80 Å to 200 Å is 35 percent or more based on total pore volume.

2. (original) The dimethyl ether steam reforming catalyst according to Claim 1, wherein the total content of said Cu and said at least one element is 25 wt% to 35 wt%.

3. (currently amended) A dimethyl ether steam reforming catalyst capable of steam-reforming dimethyl ether to obtain hydrogen, comprising active alumina, Cu, and at least one element selected from the group consisting of Mn, Fe and Zn, wherein the catalyst is prepared by a sol-gel method and the catalyst having has a porous structure, and wherein an amount of pores having pore diameters of 80 Å to 200 Å occupy a largest volume in said porous structure ~~and wherein~~ the volume of pores having pore diameters of 80 Å to 200 Å is 35 percent or more based on total pore volume.

4. (original) The dimethyl ether steam reforming catalyst according to Claim 1 or 3, wherein said at least one element contains 0.1 wt% to 1.0 wt% of Mn.

5. (original) The dimethyl ether steam reforming catalyst according to Claim 1 or 3, wherein said at least one element contains 0.5 wt% to 2.0 wt% of Fe.

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6. (original) The dimethyl ether steam reforming catalyst according to Claim 3, wherein said at least one element contains 0.1 wt% to 7.0 wt% of Zn.

7. (canceled).

8. (original) A method for producing a dimethyl ether steam reforming catalyst capable of steam-reforming dimethyl ether to obtain hydrogen, comprising the steps of:
adding an acid, a Cu salt and at least one salt selected from the group consisting of Mn salts, Fe salts and Zn salts to an aluminum alkoxide to produce a sol;
drying the resulting sol by evaporation to produce a gel;
calcinating the resulting gel to obtain a solid; and
reducing the resulting solid.
adding an acid, a Cu salt and at least one salt selected from the group consisting of Mn salts, Fe salts and Zn salts to an aluminum alkoxide to produce a sol;
drying the resulting sol by evaporation to produce a gel;
calcinating the resulting gel to obtain a solid; and
reducing the resulting solid.